

# INNOVATION

**SPOTLIGHT** from the brands of Altra Industrial Motion Corp.



Average number of weeks saved by using 3D printing technology for part prototyping

## WARNER ELECTRIC IN-HOUSE 3D PRINTING CAPABILITY ACCELERATES ENGINEERING AND MANUFACTURING PROCESSES

Since their introduction into the marketplace, 3D printers have revolutionized how manufacturers do business. The ability to generate extremely detailed 3D objects based on CAD drawings allows manufacturers to move rapidly from concept thru prototyping and on to manufacturing.

With the cost of 3D printers falling significantly over the past few years, more and more companies have been able to integrate the technology into their engineering design and manufacturing workflows.

### UTILIZING THE LATEST 3D PRINTING TECHNOLOGY

Warner Electric has installed a state-of-the-art 3D printer in a specially constructed temperature- and humidity-controlled room adjacent to the engineering department. The printer can accommodate a variety of resin materials to meet unique part specifications. Warner engineers can utilize the printer to generate a part within hours compared to weeks, depending on the level of machining typically required. The new 3D printer is used for prototyping new part designs and also for generating small quantity production parts.

David Ebling, president of Altra Industrial Motion's Electromagnetic Clutch Brake Group explains, "Today, rapid 3D design and 3D manufacturing technologies enable us to quickly produce complex-shaped parts to satisfy specific customer needs, with less capital investment. Together with quick set-up practices and single-piece flow production methods, part 'volume' consideration is now mostly irrelevant."



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## 3D PRINTER HELPS TO QUICKLY ESTABLISH “PROOF OF CONCEPT”

An aerospace OEM recently asked Warner Electric to review an established clutch design to determine if it could be improved and cost-reduced.

The slip clutch is mounted within the power-operated drivetrain on cargo plane pallet lock down systems. The clutch disengages the drive when it senses 50 Nm of torque if the clamping system hits an obstruction during closing or opening. This prevents damage from occurring to the clamps, actuators and drivetrain components which can be costly and more importantly take the plane out of service.



Warner engineers accepted the challenge and immediately began reviewing the application specifications and the customer’s original clutch sample.

After careful analysis, the Warner engineering team developed a new unique prototype clutch solution. Within hours they also designed a test device to mount the new clutch so they could establish “proof of concept.”

The testing device was produced using Warner’s in-house 3D printer. The prototype clutch was mounted to the unique 3D printed device and cycle testing was performed.

The process, from initial customer meeting to prototype development and testing, took approximately 3 weeks, much faster than if traditional engineering tools were used.

